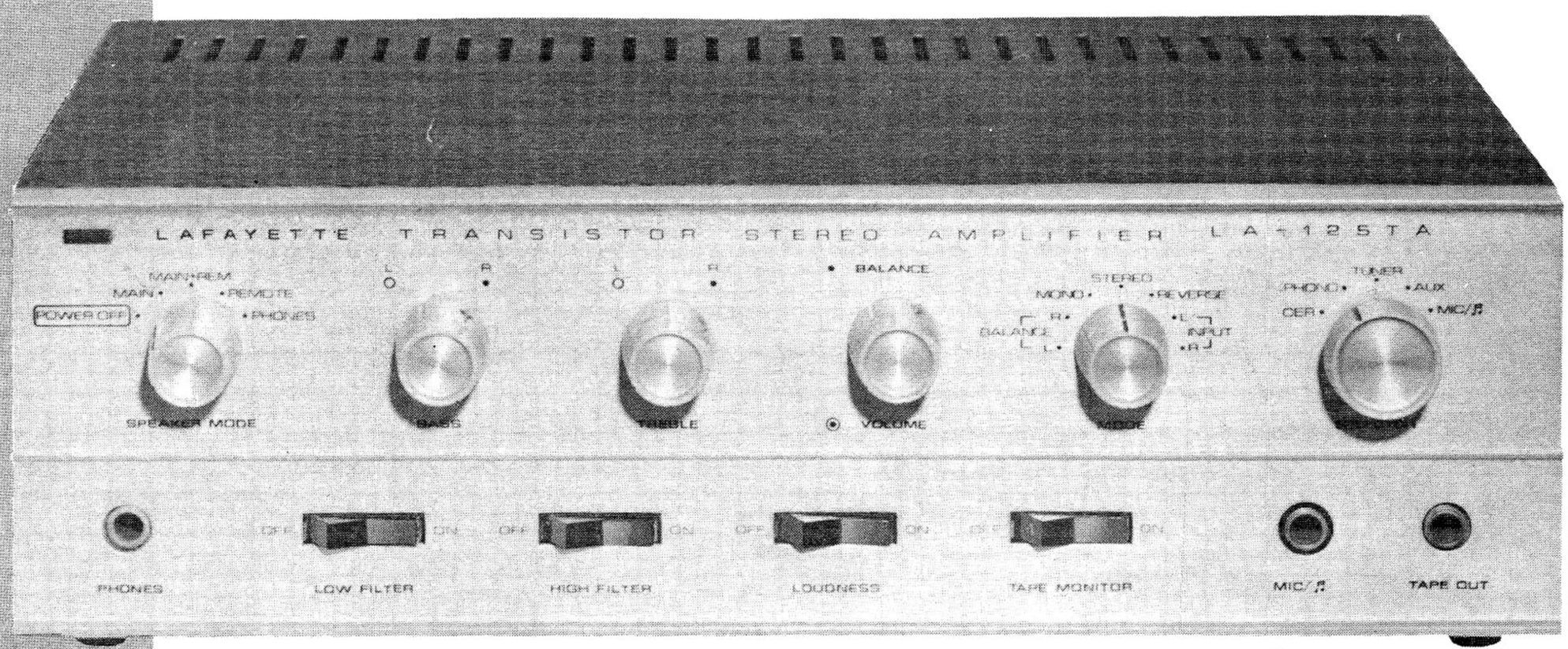
LAFAYETTE

Model LA-125TA

(Stock No. 99-0207 WX)



125 Watt Solid State Stereo Amplifier

With

COMPUTOR-MATIC™

LAFAYETTE®
COMPUTOR-MATIC™

INSTALLATION AND OPERATING MANUAL

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LAFAYETTE RADIO ELECTRONICS CORPORATION

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TECHNICAL SPECIFICATIONS

POWER OUTPUT (IHF)	125 watts (62.5 watts per channel) at 4 ohms. 95 watts (47.5 watts per channel) at 8 ohms.
OUTPUT IMPEDANCE	4, 8 or 16 ohms.
HARMONIC DISTORTION	Less than 1% at rated output, .2% at 1 watt (1 Kc).
FREQUENCY RESPONSE	22-20,000 cps ±1 db.
POWER BANDWIDTH	20-40,000 cps.
CHANNEL SEPARATION	65 db at 1 Kc.
TONE CONTROL RANGE	Bass (50 cycles) 25 db. Treble (10 Kc) 23 db. Loudness control (50 cycles) + 11 db, (10 Kc) + 3.5 db.
INPUT SENSITIVITY	Aux and Tuner : 270 mV Tuner (High) : 750 mV (Low) : 115 mV Phono (Magnetic) : (High) 2.2mV (Low) 7mV (Ceramic) : 80 mV Mic/Musical : 6mV
HUM AND NOISE	Aux and Tuner : -75 db Phono and Microphone : -56 db
LOW FREQUENCY FILTER	-17 db at 20 cycles.
HIGH FREQUENCY FILTER	-10 db at 10 Kc.
SOLID STATE DEVICE	Transistors : 26 Diodes : 15
POWER REQUIREMENTS	110-120 volts, 50/60 cycles AC.
DIMENSIONS	13" W. x 9-7/32" D. x 3-7/8" H.
NET WEIGHT	11 lbs.

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GENERAL DESCRIPTION

The LA-125TA is an all transistor amplifier designed for high quality stereophonic or monophonic reproduction. It combines a stereo control preamplifier and 125 watt stereophonic power amplifier in one compact and handsomely designed unit. The advanced all-transistor design offers all the advantages expected from solid state circuitry--instant warmup, low current consumption, cool operation, low distortion and noise, good transient response, wider frequency at full power. The amplifier has inputs for every type of stereo or monophonic program source -- record players, multiplex FM tuners, tape recorders, etc. Separate phonograph inputs are provided for record players equipped with magnetic or ceramic (crystal) cartridges, each pair of inputs offering proper loading and equalization for accurate reproduction. Tape recorder outputs let you record all stereo or monophonic programs reproduced through the amplifier. Main speaker outputs of two terminals for each channel -- all speakers, regardless of impedance (4, 8 or 16 ohms) connect to these terminals. Also include are two additional terminals for speaker outputs for use with remotely connected extension speakers. "Computor-matic" circuit offers protection against the destruction of the output transistors due to short-circuits in the speaker line.

A full range of controls provide complete flexibility of operation and ensures the finest sound reproduction at all times, regardless of the variations in program sources or room acoustics.

To obtain the best performance from your high-fidelity stereo system, we recommend that you read carefully all the instructions contained within this manual. We also suggest that you keep the manual close at hand and in a safe place so that you may refer to it when necessary.

INSTALLATION

The amplifier may be used in any convenient location such as an equipment cabinet, shelf, table or bookcase. Modern and attractive in appearance, the amplifier lends itself to this type of installation.

The amount of heat generated by this amplifier is relatively small compared to vacuum-tube amplifiers. Even so, provision must be made for some ventilation in order to disperse the small amount of heat that is generated.

ECTRICAL CONNECTIONS

AC POWER

The amplifier operates from a power source of 105-120 volts AC, 50-60 cycles. Do not attempt to use the amplifier on any other power source or damage will result.

CONVENIENCE OUTLETS

Two convenience outlets are provided at the rear of the amplifier. These may be used to supply AC power to external equipment (such as record player, tuner, etc.). AC power is available at the left-hand outlet (when viewed from the rear) only when the amplifier is switched on. The maximum power that should be drawn from this outlet is 60 watts. However, AC power is available at the right-hand outlet at all times. This outlet should not be used to supply equipment requiring more than 300 watts. This outlet is recommended for use with a record player; turning off the amplifier will not turn off the record player while its idler wheel is still engaged.

GROUND CONNECTIONS

A ground screw at the rear of the amplifier (marked GND) provides for optional connection between the amplifier chassis and other Hi-Fi components that are used in the system. It may also serve as a safety feature when connected to a suitable ground point (such as a cold waterpipe, etc.).

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BASS CONTROL
Provides adjustment of the bass (low) tones for each channel.

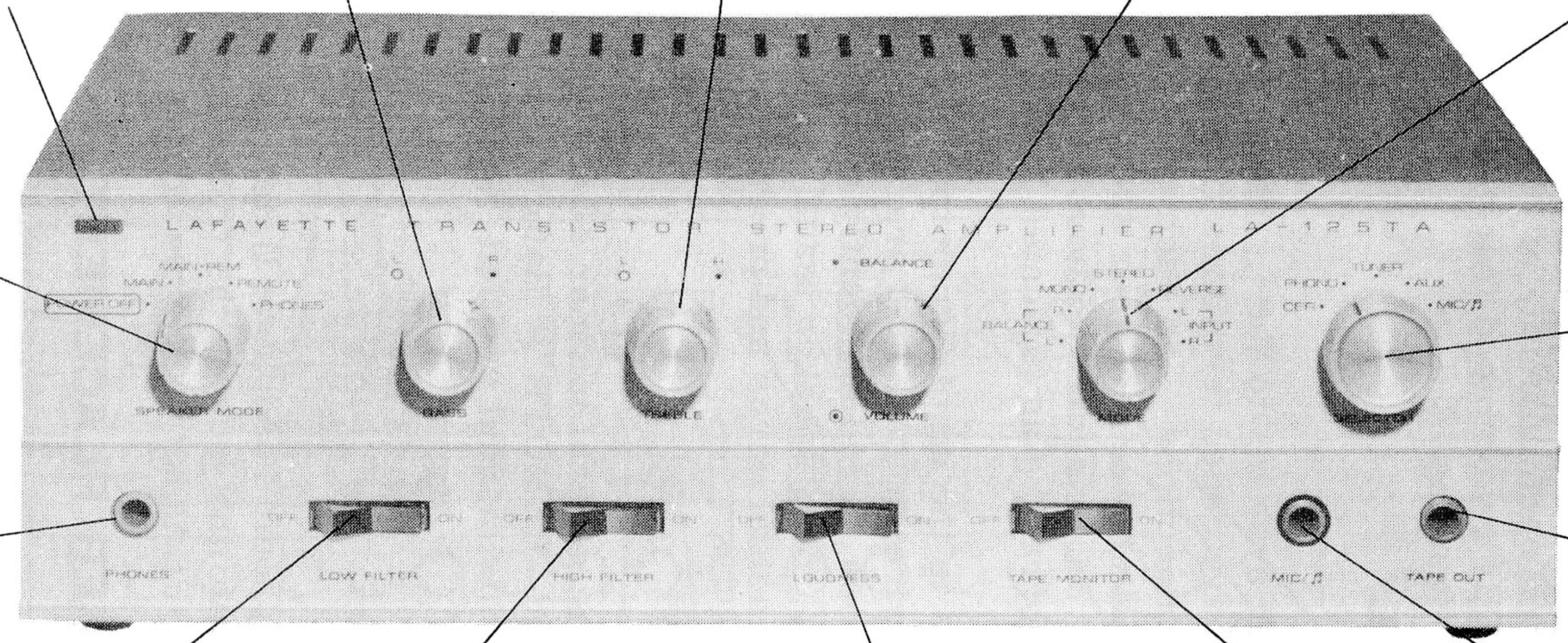
TREBLE CONTROL
Provides adjustment of the treble (high) tones for each channel

BALANCE/VOLUME CONTROLS
Dual controls provide adjustment of the volume for each channel.

PILOT LIGHT
Provides indication of when amplifier power is on.

MODE
Determines the manner in which the amplifier is operated

SPEAKER MODE
switches the amplifier on and selects main stereo speakers only, main and remote speakers, remote speakers only, or phones only.



SELECTOR
Selects desired program sources connected to the input jacks.

PHONES
Receptacle provided for use with stereo headphones (4, 8 or 16 ohms impedance).

TAPE OUT
Front panel receptacle provides a stereo output for recording purposes

MIC/MUSICAL
Connects to microphone or musical instrument pick-up for reproduction through amplifier.

LOUDNESS SWITCH
Increases the bass and treble tones – used to produce realistic reproduction at low listening levels.

TAPE MONITOR SWITCH
Lets you listen to playback of tape

LOW FILTER
used to reduce low frequency noise.

HIGH FILTER
Used to reduce high frequency noise.

FIGURE 1. CONTROL FUNCTIONS

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CONNECTING YOUR ASSOCIATED EQUIPMENT

WARNING: Do not insert or remove connecting cables with the amplifier switched on.

LOUDSPEAKERS

The interconnecting diagram (Fig. 2) illustrates how the main and remote speakers are connected to this amplifier. For indoor installations, ordinary plastic-covered lamp cord (No. 18 gauge) should be used to connect the speakers to the amplifier.

In order to ensure balanced tonal quality and output, it is recommended that identical speakers be connected to each channel. Speakers not of the same impedance or model will produce sound differences between channels which may detract from the over-all stereo performance. If you intend to use more than one main speaker on each channel, or if you plan to use remote speakers in addition to the main speakers, we strongly recommend that you read the section at the end of the manual titled "Using Multiple Speaker Systems".

MAIN SPEAKER CONNECTIONS

Connect your "Main" left and right speaker systems to the _ and + terminals marked "MAIN" (as indicated in Fig. 2). If the speakers have coded terminals (for example, – and ±) try to maintain a consistency in the manner of connections -- in each case, connect the "+" speaker leads to the " + " terminals, as shown. This will ensure that your speakers are connected in phase. If the speaker leads are not coded, they may be connected without regard to polarity. Any out-of-phase condition which may result can be corrected as indicated later.

CAUTION: When connecting speaker leads to the amplifier output terminals or to the speaker terminals, make sure that the strands of wire on each lead are securely held under each screw head. This will avoid the possibility of loose strand accidently touching an adjacent terminal and short circuiting the speaker output. Also, if the speaker leads are secured anywhere by means of staples, make sure they do not pierce the actual wires and produce a short circuit.

REMOTE SPEAKER CONNECTIONS

Remote speakers are connected in the same general manner as the main speakers, except that they are connected to the terminals marked "REMOTE". Before connecting remote speakers, we urge you to read the section at the end of this manual entitled "USING MULTIPLE SPEAKER SYSTEMS".

STEREO HEADPHONES

This amplifier is also designed for stereophonic headphone listening. Simply plug the stereo headphones (4, 8 or 16 ohms impedance) into the jack on the front panel designated PHONES. If you wish to silence the speakers, set the SPEAKER MODE switch to "PHONES" position.

SPEAKER PLACEMENT

To obtain optimum performance from your stereo system, it is important that the left and right channel speakers be placed at definite locations within the listening area. If the speakers are too closely spaced, the stereo effect will be severely limited. Except in a very small room eight feet is considered minimum spacing between spakers for good stereo separation. Good stereo listening begins a distance in front of the speakers equal to their separation, and continues for twice this distance. For example, if the speakers are placed 8 feet apart, the best listening area extends from 8 to 16 feet in front of the speakers.

A large spread between speakers is permissible if the listening area is moved back proportionately. Close listening to widely separated speakers creates a "hole in the center" which gives the impression of two distinctly separate sound sources rather than the desired sound dispersion. If speakers are substantially separated, it is generally best to "angle" the side speakers toward the center of the listening area.

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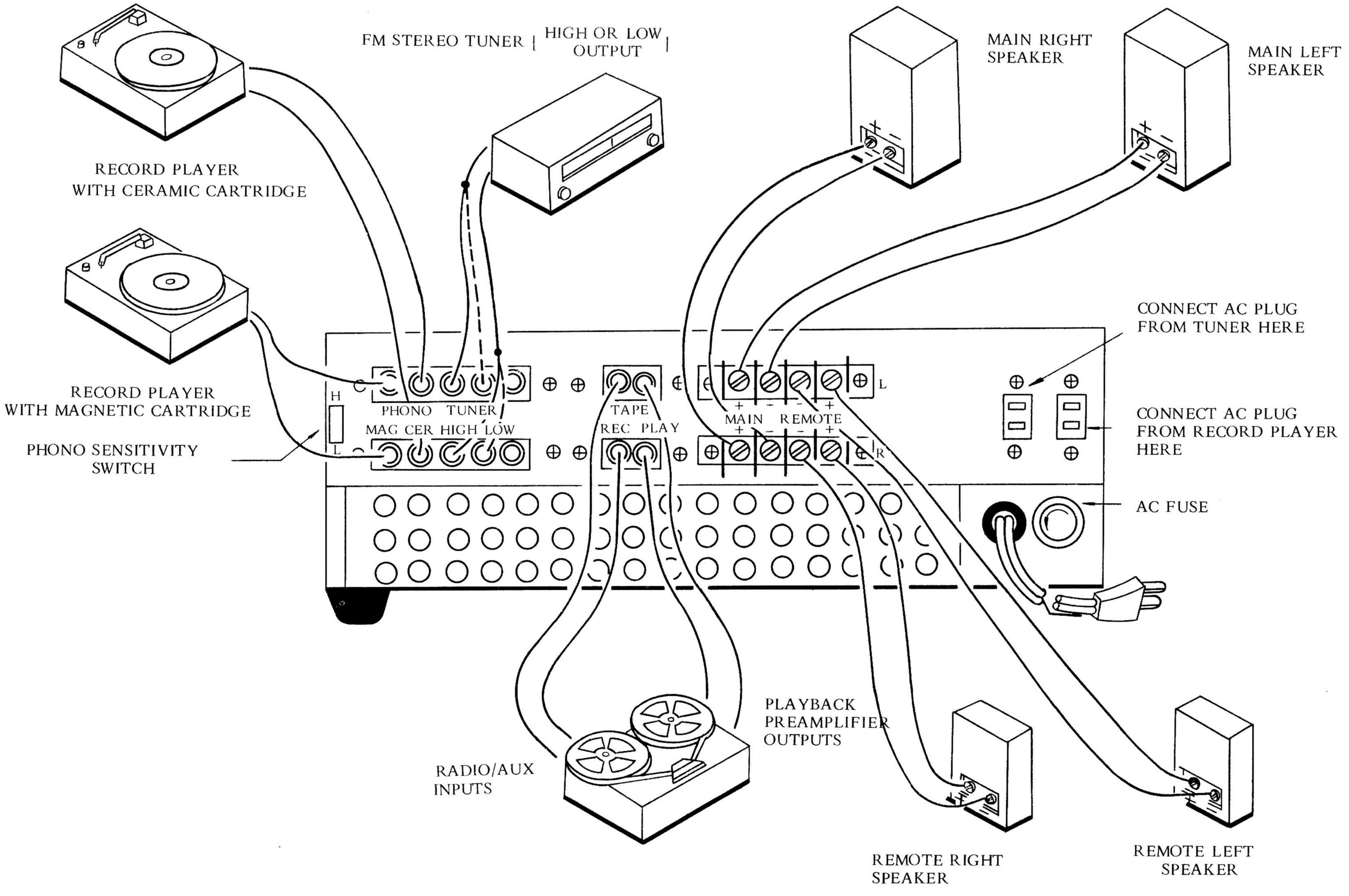

FIG. 2 INTERCONNECTING DIAGRAM

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RECORD PLAYER CONNECTIONS

The shielded audio cables from a record changer or turntable are normally terminated with RCA type phono plugs. The phonograph input jacks on your amplifier are designed to accept this type of plug. To avoid excess hum level and loss in the high frequency tones, the cables from the record player should not exceed 10 feet in length. A screw at the rear of the amplifier (marked GND) has been provided that will permit grounding of the unit to a cold waterpipe, etc. If you are using a record player that is equipped with a ground wire, connect it to this ground screw.

RECORD PLAYERS WITH CERAMIC CARTRIDGES

The two output cables from a stereo record changer or turntable equipped with a ceramic or crystal cartridge should be connected to the input jacks marked "CER". If the player is equipped with a monophonic cartridge, connect the single output cable to the left or right ceramic input jack. The ceramic phono inputs will be selected when the SELECTOR switch is placed in the "CER" position.

RECORD PLAYERS WITH MAGNETIC CARTRIDGES

The two output cables from a stereo record changer or turntable equipped with a magnetic or variable reluctance cartridge should be connected to the left and right input jacks marked MAG. The magnetic phono inputs will be selected when the SELECTOR switch is placed in the "PHONO" position.

The input circuits at the "MAG" jacks offer the standard RIAA equalization necessary for outputs from magnetic or variable reluctance cartridges. If the record player is equipped with a monophonic cartridge, connect the single output cable to the left or right MAG input jack.

PHONO SENSITIVITY SWITCH

Output levels of phono cartridges vary from one manufacturer to another--some being as low as 2 millivolts, others as high as .5 volts or more. Provision has been made to accommodate the output (low or high) from virtually any magnetic or ceramic cartridge by equipping this amplifier with a phono sensitivity switch.

CAUTION: Never set the phono sensitivity switch to the "H" (high) position when using a cartridge with a high output level. This may overload the input stages in the amplifier, resulting in distortion in the sound output.

The "L" (low) position provides the least amount of gain and is therefore suitable with higher output cartridges. The "H" (high) position is designed for use with low output cartridges.

To determine the correct setting of the Phono Sensitivity Switch, it is recommended that the following procedures be used to obtain the proper switch setting.

1. Set up complete installation of the amplifier (including speakers, AC power, etc.). The record player should be connected to the phono inputs, as instructed previously, and the Phono Sensitivity switch set initially to the "L" position.

2. Set all controls for "Stereo" or "Mono" operation.

3. Operate your record player using either a monophonic or stereophonic record.

4. With the Phono Sensitivity switch in the "L" position, a normal listening level should be obtained when the VOLUME/BALANCE control is approximately at the 9 o'clock position (1/4 volume). If the listening level appears to be a bit lower than normal, set the switch to the "H" position.

   In either case, the proper setting of the Phono Sensitivity switch ("H" or "L") is to select the phono sensitivity setting which will produce a clean and undistorted audio signal to the speakers.

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TUNERS

The input jacks designated "TUNER" are for use with AM or FM stereo tuners, FM multiplex adapters, TV recivers and other equipment. Shielded cable complete with phono-type plugs should be used to connect any of these sources to the amplifier.

The output of an FM stereo multiplex tuner should be connected as follows : Connect the tuner's Left channel output to the left channel TUNER input on the amplifier, and the tuner's Right channel output to the right channel TUNER input on the amplifier, Monophonic FM and AM tuners should have their outputs connected to either the left or right "TUNER" inputs. Depending on the output of the tuner, use either High or Low TUNER input, whichever produces a clean and undistorted audio signal to the speakers.

TAPE RECORDERS

RECORDING

Use the outputs available at the "TAPE REC" jacks on the amplifier -- all programs selected for reproduction through the amplifier are connected to these jacks. Use shileded cables with phono plugs to connect these jacks to the tape recorder phone or radio inputs. While recording, the Volume, Bass and Treble controls have no effect on the signals at the "TAPE REC" jacks.

For convenience, a stereo output for recording is also available at the TAPE OUT jack on the front panel. This jack is designed to mate with a standard 1/4-inch 3-conductor phone plug (such as a Lafayette type 99-6119). If desired, a prewired 6-foot cable, containing a 3 conductor phone plug on one end, and a pair of phono-type plugs on the other, is also available from Lafayette Radio Electronics under Stock No. 99-6336.

If the tape recorder is equipped with a separate playback/monitor head and suitable preamplification in the recorder, this output can be connected to the "TAPE PLAY" jacks on the amplifier. Placing the TAPE MONITOR switch to the "ON" position will then allow you to hear the program that is being recorded on the tape.

PLAYBACK

The output from a stereo tape deck (containing preamp) or recorder should be connected to the "TAPE PLAY" input jacks. Shielded cables with matching phono plugs should be used for the connection of the equipment. To avoid overloading the amplifier, the level controls on the recorder preamp should be adjusted. When playing back tapes, set TAPE MONITOR switch in the "ON" position.

DESCRIPTION OF CONTROLS

We suggest you take the time to read this section carefully. A large number of controls and switches have been provided on this receiver to ensure complete flexibility of operation. A full understanding of each control and its functions will enable you to obtain maximum enjoyment from your complete system.

SELECTOR

This switch selects the program source. In detail, each position does the following :

CER ..... Selects phono inputs connected to the "CER" input jacks.

PHONO ..... Selects phono inputs connected to the "MAG" input jacks.

TUNER ..... Selects source connected to the "TUNER" input jacks.

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AUX ..... Selects source connected to the "AUX" input jacks.

MICROPHONE/MUSICAL .. Selects microphone or musical instrument pick-up when connected to the front panel "MIC/MUSICAL" input jack.

MODE

This switch determines the mannner in which program sources (previously selected by the SELECTOR switch) will go through the amplifier.

Balance L ..... This mixes a right and left channel input for reproduction through the left channel and left speaker only.

Balance R ..... This mixes a right and left channel input for reproduction through the right channel and right speaker only. Switching between this position and "Balance L" allows you to listen to each channel individually to compare them for equal volume level (See section on "Speaker Phasing and Balancing").

Mono ..... A program source connected to left and right channel input jacks is mixed and reproduced through both channels and speakers. Also a single program source connected to either the left or right input jack is automatically reproduced through both channels and is heard from both speakers.

Stereo ..... This position provides stereophonic reproduction of any stereo program source.

Reverse ..... During stereo reproduction, you may wish to reverse the sound outputs from the left and right speakers. Placing the switch in the reverse position will cause the instruments formerly head from the left spaker to be heard from the right speaker, and vice versa.

Input L ..... A program source connected to a left channel input jack is reproduced through both channels and is heard from both speakers.

Input R ..... A program source connected to a right channel input jack is reproduced through both channels and is heard from both speakers.

VOLUME/BALANCE

These are concentric controls which permit individual adjustment of the volume for each channel. Generally, they should be set so that the indicator lines on the knobs are in the same position and turned together by grasping both knobs. However, if the speaker outputs are not equal in volume, adjustment of the small control should be made to equalize outputs. The rear knob (nearest the front panel) controls the left channel, and the small outer knob controls the right channel.

BASS AND TREBLE

These are dual concentric friction-type controls which permit the bass (low) or treble (high) tones of both channels to be adjusted simultaneously. However, the concentric controls may be operated individually by holding one knob firmly and rotating the other. When the indicator lines on these knobs are set to the center or 12 o'clock position, response is normal (flat frequency response) and the amplifier section reproduces all input frequencies equally. Clockwise rotation (from center) increases the bass or treble tones, and counter-clockwise rotation decreases them. In each case, the small outer knob controls the right channel and the panel knob behind it controls the left channel.

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SPEAKER MODE

This switch turns the amplifier on and also allows you to connect the sound either to the main speakers in your principal listening area (MAIN), to both sets of speakers (MAIN + REMOTE), to remote speakers located in a secondary location (REMOTE), or to headphones only (PHONE).

CAUTION: If you do not have speakers connected to the "Remote" speaker terminals or headphones inserted in the Phone receptacle, be sure to keep the switch in the "Main" position. However, if you are using remotely located speakers or headphones, it is always good practice to turn the Volume/Balance controls to minimum when switching the Speaker Mode.

TAPE MONITOR

In the OFF position, the program selected by the Selector switch will be reproduced throught the amplifier and head from the speakers. Setting the switch to the "on" position selects the program source connected to the TAPE PLAY jacks (the high level output of a tape recorder, for example) and reproduces it through the amplifier -- regardless of the Selector switch setting. This feature is also useful when employed with a tape recorder that is equipped with a separate playback/monitor head. During recording, the output of the playback/monitor head is connected (after suitable preamplification in the recorder) to the"TAPE PLAY" jacks on the amplifier. Placing the switch in the "Off" position also allows the program source (a phonograph record, for example) to be head through the amplifier as you record. Placing the switch in the "On" position now allows the program you have recorded on the tape itself to be heard. In this way, you can monitor the actual recording on the tape and make any adjustments if necessary.

LOUDNESS

At low listening levels the human ear does not repond equally to all frequencies. When played at very low volume, a musical program will appear to exhibit a fairly great loss of the bass tones and a slight loss of the treble tones. In order to compensate for this deficiency in the human ear, it becomes necessary to provide added volume at the low (bass) and high (treble) frequencies. This is accomplished by the LOUDNESS switch when "on". At low volume, it provides the required amount of bass and treble boost to enable the listener to hear the full range of frequencies with greater realism. The loudness circuit works in conjunction with the Volume/Balance controls so that at high volume control settings, the boosting action is automatically reduced, and the amplifier output assumes a normal response.

HIGH FILTER

This switch, when "on", will remove any of the high frequency noises (hiss and scratch) sometimes encountered in older or worn records. Unless such noises are disturbing, however, this switch should be left in the "off" position to permit the full reproduction of the high frequencies.

LOW FILTER

This switch, when "on", removes any annoying low frequency rumble that may originate in your record player and can be heard from the speakers. Normally, this switch should be placed in the "off" position to permit the full reproduction of the low frequencies.

OPERATING PROCEDURE

Before attempting to operate the amplifier, make sure that you have connected your program sources (record player, tuner, etc.) and loudspeakers correctly. Before plugging in the amplifier, be sure that the power source to be used is 105-120 volts, 60 cycles AC, and that the SPEAKER MODE switch is in the "Power off" position.

SPEAKER PHASING AND BALANCE

Correct phasing and balancing is important in a stereophonic system. If the speakers are out of phase, they will work in opposition to each other and there will be a noticeable loss in the low

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frequencies (bass). If the speaker output levels are not equal, there will be an unnatural distribution of the musical program, resulting in a loss of the stereo effect. To obtain correct balancing and phasing, use the following procedure. It is based on a simple listening principle which says that if two speakers send out identical sound, and you are equidistant from them, your ears will place the apparent source of sound halfway between the two speakers as indicated in Figure 3. For this test, the speakers should be placed about 6 to 8 feet apart and facing inward slightly as shown. You may also require the help of another person to operate the amplifier controls while you position yourself midway between the speakers.

SPEAKER PHASING

1. Set the SELECTOR to the "CER" or "PHONO" position depending on the input that is being used. Set the MODE switch to "STEREO".

2. Play a Monophonic record containing heavy bass tones. Set the Left and Right channel VOLUME controls to minimum. Set the BASS and TREBLE controls to the 12 o'clock position.

3. For this test, the speakers should be placed about 6 to 8 feet apart and facing inward slightly as shown in the diagram. You will also require the help of another person to operate the amplifier controls while you position yourself midway between the speakers as shown.

4. Adjust VOLUME/BALANCE controls to slightly higher than normal listening level. Make sure that each control is set so that the output from each speaker is approximately the same.

5. Have someone reverse the connections at the rear of one speaker. Listen carefully to the sound output as the wires are switched back and forth.

   CAUTION: Use extreme care when reversing wires to the speaker terminals. Make sure that the speaker wires are not inadvertently shorted together.

The correct of "in-phase" connection will produce the greatest amount of bass and you will also notice that the sound seems to come from an area somewhere between the speakers. Adjustment of one of the VOLUME/BALANCE controls may be necessary to center the apparent sound source so that it seems to be located midway between the speakers. If the speakers are not in phase, however, the sound will not seem to come from any clearly defined area (unless there is a large difference in output between speakers), and you may have to reverse the speaker wires again.

Remember, when the speakers are in place during the test, the sound will seem to come from between the speakers. During normal stereo operation, this condition will no longer exist of course, and reproduction will be properly distributed in accordance with the manner in which the original stereo recording was made.

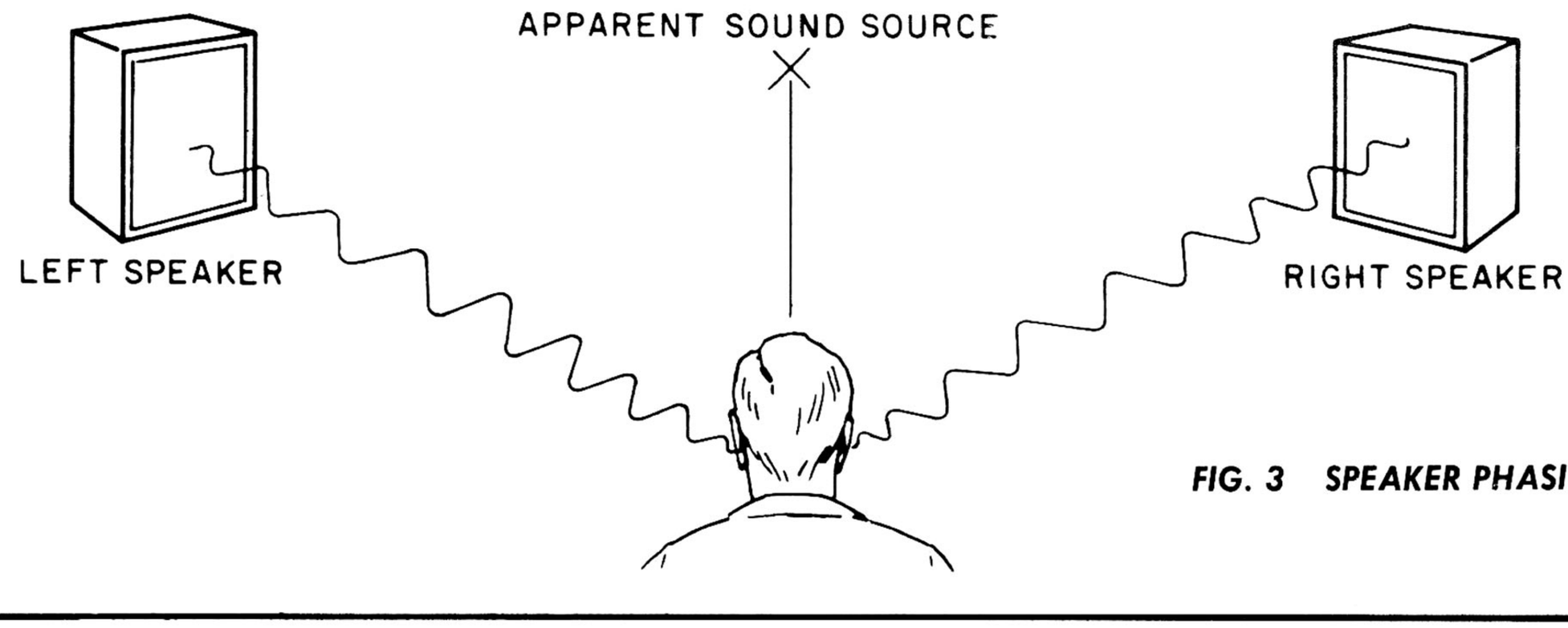

FIG. 3 SPEAKER PHASING

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Balancing the System

The concentric VOLUME/BALANCE controls on your amplifier will allow you to correct for any difference in volume between channels. Initially, set the small outer control to minimum, and the rear (panel) control for normal room volume. You can use any program source for this procedure -- FM, AM, phono or tape, mono or stereo.

Now increase the small outer control very slowly while rapidly switching MODE between BAL R and BAL L. Leave the small outer control in the position which produces equal volume from both speakers.

Occasionally you may notice that one channel is weaker than the other during stereo operation. This may be due to out-of-balance records or stereo broadcasts. Simply adjust the small outer VOLUME/BALANCE control to correct as necessary.

"COMPUTER-MATIC" OVERLOAD PROTECTION"

This unit is equipped with a newly developed overload protection circuit (patent pending) that eliminates any possibility of damage to drivers and output transistors caused by momentary or sustained overloads. A special 2 transistor circuit is used in each channel that continuously monitors the output transistor stages. Any abnormal condition is immediately sensed and the protective circuit will act instantly to cut off operation of the amplifier before damage can result. Not only is this computer-type protective circuit hundreds of time faster than a fuse, but it is also self restoring. When the cause of overload is no longer present, the circuit automatically begins to re-stabilize and normal operation is generally resumed within 1 or 2 seconds.

HOW TO RECONGNIZE OPERATION OF THE PROTECTIVE CIRCUIT

When an overload occurs (even momentarily) the protective circuit will operate instantly and the unit will be silenced. If the overload has occurred only on one channel, only that channel will be silenced. So long as the overload exists, the unit will remain silent on one or both channels. As soon as the cause of overload is removed, the circuits will begin to re-stabilize and, after 1 or 2 seconds, the equipment will resume normal operation.

On rare occasions, the unit may fail to recover from a severe overload and remain silent even when the cause has been removed. If this occurs, simply set the volume control fully counter clockwise to minimum for 2 or 3 seconds, then return it to its normal position. This action will speed the re-stabilization of the circuits.

CAUSES OF OVERLOAD

Overloads can be brought above by a number of causes, either momentary or permanent.

Momentary overloads can result from severe noise impulses such as those caused by lightning and static, switching noise, or from momentary shorting of speaker lines. Under these conditions, the receiver will usually resume normal operation within 1 or 2 seconds. Permanent overloads will result if speaker lines are permanently shorted or if a sustained signal of abnormally high level is applied to the input of the amplifier section (such as excessive hum, for example). Permanent causes of overload must be located and rectified before the unit can resume normal operation.

AC INPUT FUSE

The value of the AC fuse is 1 1/4 amperes. In the event of its failure, this fuse should be replaced with one of the same rating. Replacing it with a fuse of a higher rating may not protect the amplifier and cause severe damage.

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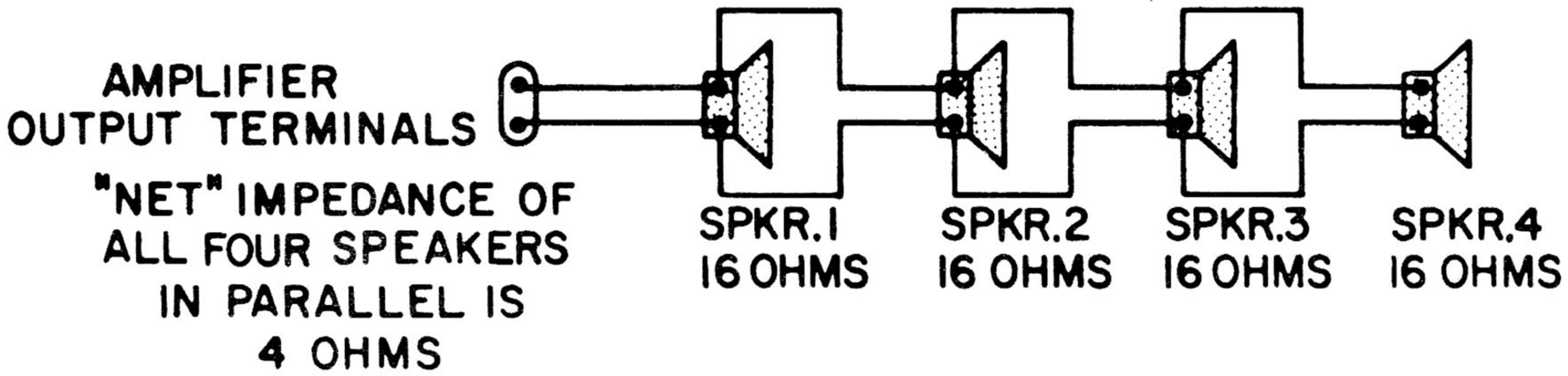
USING MULTIPLE SPEAKER SYSTEMS

The connection of several speaker systems on each channel must be carried out with great care, in order to prevent continuous operation of Overload Protection circuit. Basically, you must ensure that the final impedance presented by all speakers (both main and remote) on each channel does not fall below 4 ohms. Speakers connected to both "Main" and "Remote" terminals must be taken into consideration because in the "MAIN + REM" position of the SPEAKER MODE switch, any speakers attached to these terminals are connected in parallel, causing a considerable reduction in total speaker impedance -- possible to a dangerously low figure (below 4 ohms). We therefore urge you to read the following section if you intend to connect remote speakers or if you plan to use more than one speaker (per channel) on the "Main" speaker outputs.

THE EFFECT OF MULTIPLE SPEAKERS ON IMPEDANCE

Most of the high fidelity speakers systems manufactured today are rated at either 8 or 16 ohms impedance, although there are several good ones rated at 4 ohms. When used singly, that is, one speaker on each channel, no special precautions need be taken. Each speaker, whether 4, 8 or 16 ohms impedance, is simply connected to the "Main" output terminals on each channel of the amplifier. However, if you wish to add Remote speakers or connect more than one speaker to each "Main" channel, special precautions must be taken.

First, it must be understood that the recommended method of wiring multiple speakers in a high fidelity system is the parallel type of connection. This is illustrated in the following diagram. Series type connections may produce undesirable reactions in each speaker and should not therefore be used.



Unfortunately, the final or "net" impedance that results when speakers are connected in parallel is considerably lower than any one of the individual speaker impedances. And, as each additional speaker is added, the net impedance is further reduced. When each speaker in the group has the same impedance, it is relatively simple to calculate the net impedance of all the speakers combined. Divide the impedance of any speaker by the total number of speakers you intend to use (on each channel). For example, four 16 ohm speakers in parallel would be :

16 (ohms) ÷ 4 (number of speakers) = 4 ohms

Thus, the actual impedance presented to the amplifier is 4 ohms.

This method may be used to calculate the net impedance of any number of speakers in parallel, provided all speakers are of identical impedance. However, when the speakers have differing impedances, a more complex formula must be used.

To avoid the need for time-consuming calculations, we have previded a chart which shows many combinations of speakers that may safely be connected to your amplifier. Note that the number and impedance of speakers that may be used applies to each channel. For example, in combin-

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ation "D" two 8-ohm speakers may be attached to the "Main" terminals on each channel, resulting in a total of four 8-ohm speakers for both channels. With this arrangement, however, no speakers may be connected to the "Remote" terminals. Note also that each combination lists the maximum number of speakers that may be used at the impedances indicated. It is always possible to use fewer speakers than those shown. In combination F, the chart shows that up to four 16-ohm speakers may be used on each channel -- two 16-ohm speakers connected to the "Main" terminals and two 16-ohm speakers to the "Remote" terminals. However, it would be quite in order to use only one 16-ohm Remote speaker and only one 16-ohm Main speaker, for example. An illustration of the wiring of speakers listed in combination F is shown on the next page as an example.

PERMISSIBLE SPEAKER COMBINATIONS

The chart below shows the various combinations of speakers that may be connected to each channel of the amplifier without overloading the amplifier. The word "none" under the main or remote column indicates that no speaker may be connected to these terminals.

Each Channel	Main Terminals	Each Channel	Remote Terminals		
Speaker 1	4 ohms	Speaker 2	None	A	Single Speaker Combinations (1 spkr connected to the "Main" Terminals).
Speaker 1	8 ohms	Speaker 2	8 or 16 ohms	B	
Speaker 1	16 ohms	Speaker 2	8 or 16 ohms	C	
Speaker 1 Speaker 2	8 ohms 8 ohms	Speaker 3 Speaker 4	None None	D	Multiple Speaker Combinations (More than one speaker connected either to the Main or Remote terminals).
Speaker 1 Speaker 2	8 ohms 16 ohms	Speaker 3 Speaker 4	16 ohms None	E	
Speaker 1 Speaker 2	16 ohms 16 ohms	Speaker 3 Speaker 4	16 ohms 16 ohms	F	
Speaker 1 Speaker 2	16 ohms 16 ohms	Speaker 3 Speaker 4	8 ohms None	G	
Speaker 1 Speaker 2	16 ohms None	Speaker 3 Speaker 4	8 ohms 16 ohms	H	
Speaker 1 Speaker 2	8 ohms None	Speaker 3 Speaker 4	16 ohms 16 ohms	I	
Speaker 1 Speaker 2 Speaker 3	16 ohms 16 ohms 16 ohms	Speaker 4 Speaker 5 Speaker 6	16 ohms None None	J	
Speaker 1 Speaker 2 Speaker 3	8 ohms 16 ohms 16 ohms	Speaker 4 Speaker 5 Speaker 6	None None None	K	
Speaker 1 Speaker 2 Speaker 3 Speaker 4	16 ohms 16 ohms 16 ohms 16 ohms	Speaker 5 Speaker 6 Speaker 7 Speaker 8	None None None None	L	

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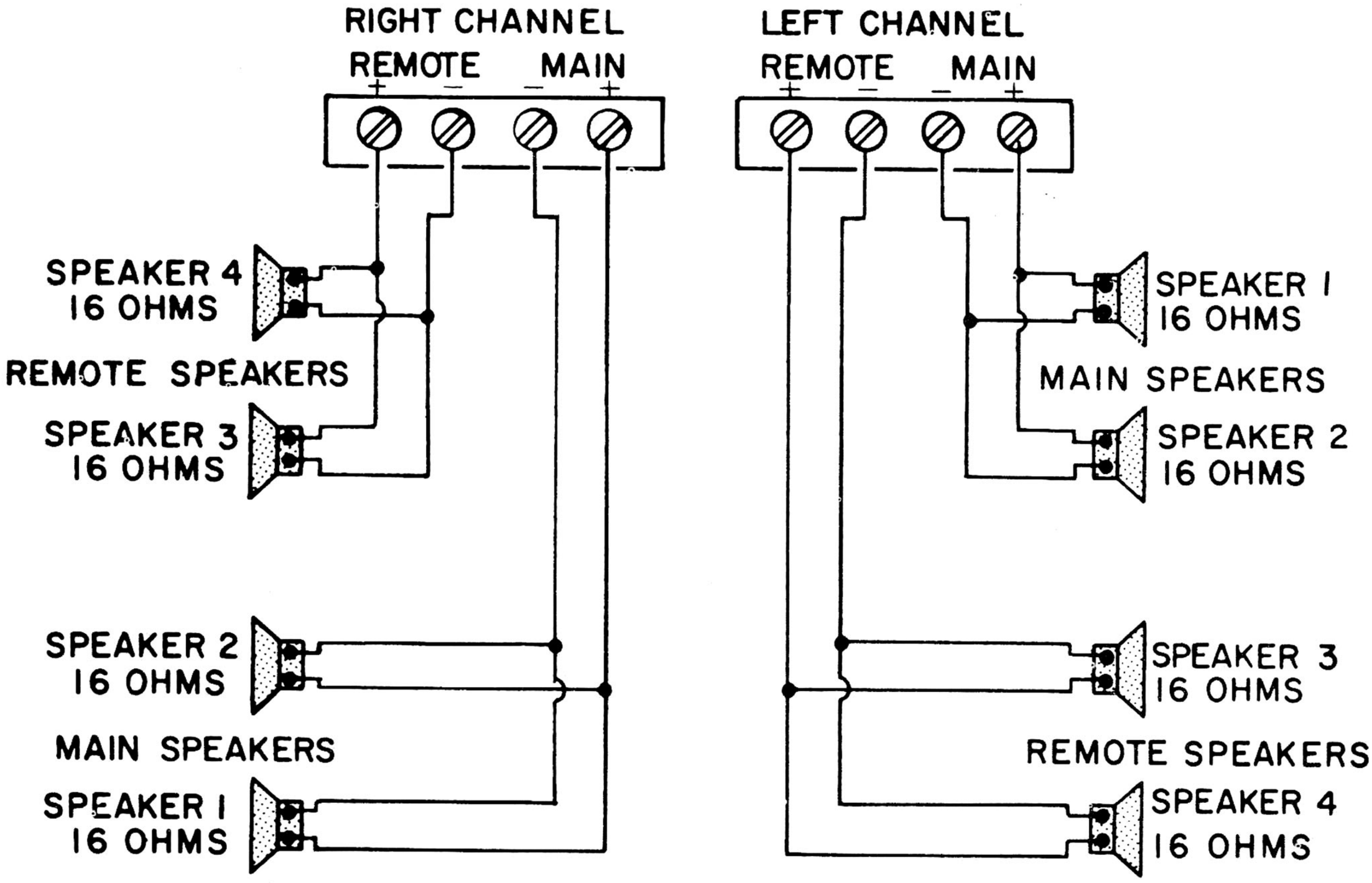
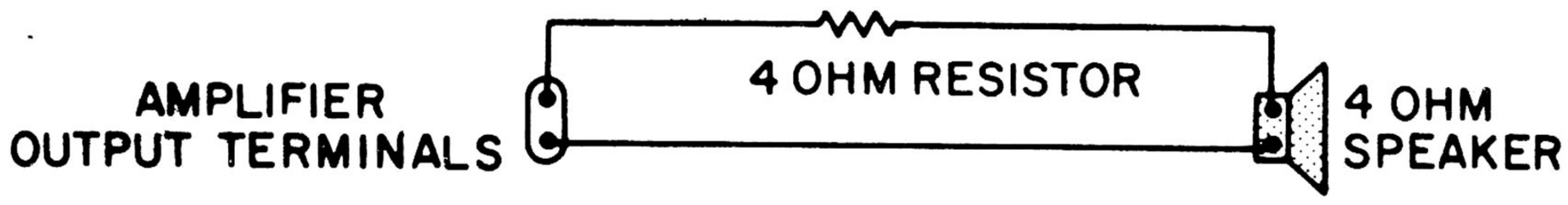


WIRING OF SPEAKERS LISTED IN COMBINATION "F" OF CHART

USING SERIES RESISTORS TO INCREASE NET IMPEDANCE

The use of a large wattage resistor in series with one lead to a speaker will effectively increase its impedance by the value of resistor chosen. For example, if a 4-ohm resistor were connected in series with a 4-ohm speaker, the total impedance of the speaker system would become 8 ohms (4 / 4).



IMPEDANCE IS NOW 8 OHMS

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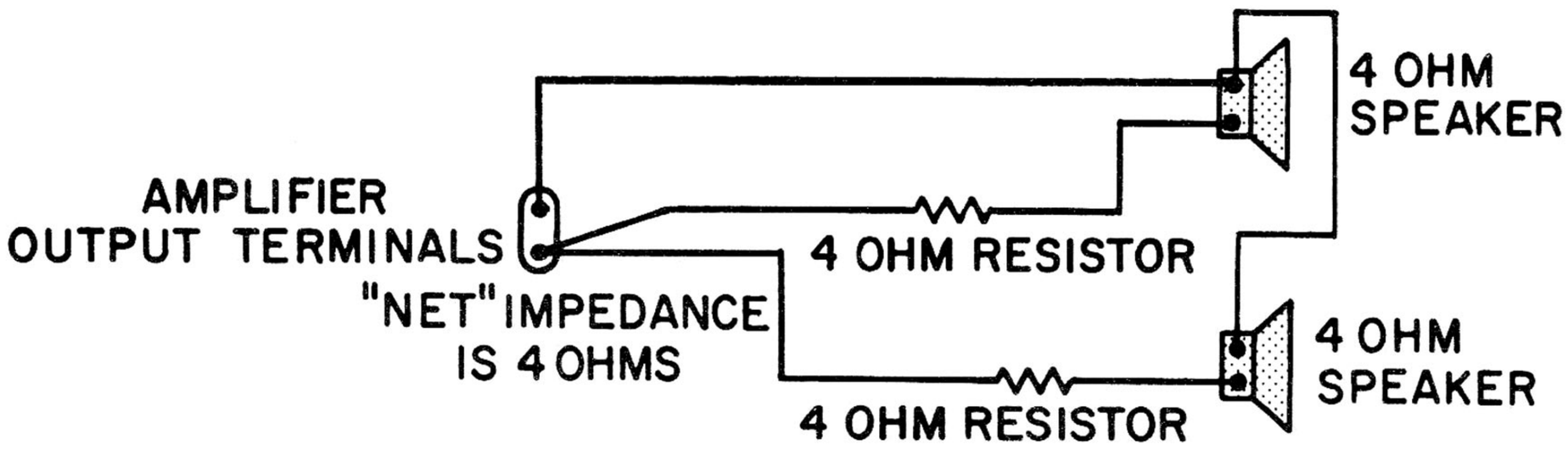
This type of arrangement, when correctly carried out, will permit the use of an even wider range of speaker combinations. Unfortunately, each resistor added in series will introduce a substantial loss in power. In the example just given, half of the output power available would go to the 4-ohm speaker and half would be developed across the 4-ohm resistor. In effect, this means that twice as much power would be required for a given sound output. With solid state amplifiers, the loss of power introduced by the resistor might be considered to be even greater.

One of the normal characteristics of transistor power output stages (regardless of manufacturer) is that they will usually produce maximum power at only one impedance, either 4, 8 or 16 ohms. For this reason, the maximum power rating of a unit is usually given at a specific load impedance. When speakers used are of either lower or higher impedance, the maximum amount of output power the receiver or amplifier is capable of producing will be somewhat lower than the figure advertised. In most cases, this reduction in available power is not significant (in the order of a few watts only). Even so, the addition of a series resistor might, by raising the impedance above the recommended load, reduce the output capability of the amplifier in some cases.

When two 4-ohm speakers are paralleled and a series resistor is included in each line to avoid reducing the net impedance below 4 ohms (as shown in the diagram), the available output power is developed across four elements in the system -- two speakers and two resistors. If each speaker requires 5 watts of power to produce adequate sound output, the amplifier or receiver would have to provide 20 watts -- 5 watts across each speaker and 5 watts across each resistor. The examples given are relatively simple ones and were chosen to more clearly illustrate some of the problems that may be encountered when series resistors are added. Therefore, before attempting to connect any speaker arrangement using series resistors, we strongly recommend that you consult a local high fidelity technician who will be able to determine the value of the resistors to be used, plus the necessary power rating required. Remamber, an error in calculation on your part may result in continuous operation of the Overload Protection circuit.



SIMPLE TROUBLE-SHOOTING

If any trouble is encountered with your high-fidelity system, we recommend that you do the following :

1. Make sure the amplifier is plugged into the correct power source (105-120 volts AC, 50/60 cycles). Check the pilot lamp on the amplifier. If it is not lit, switch the unit off and check the main AC fuse at the rear of the unit. If the fuse has blown, obtain a replacement fuse of the same rating and insert it into the amplifier. If the fuse blows again, a fault in the amplifier must be suspected. DO NOT ATTEMPT TO USE A FUSE OF A HIGHER RATING THAN THAT SPECIFIED.

2. If the pilot light on the amplifier appears to be lit, and no sould is heard from the speakers, refer to paragraph "Computer-Matic" Overload Protection, page 11.

3. Check for possible error in control or switch settings. Make sure the MODE and SELEC-

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TOR switches are correctly set to provide the type of operation you want.

4. If the trouble was experienced during your initial operation of the system, check all interconnections for accuracy, and check that all plugs are firmly inserted.

5. Check to make sure your program source is not at fault if your are using a record player or tape recorder. Make sure speakers are properly connected and that they are not at fault.

6. Check any connecting audio cables themselves for an intermittent "open" or "shorted" condition.

IMPORTANT : When checking cables, make sure Volume controls are at minimum or amplifier is switched off.

If you have definitely established that there is trouble in the amplifier, DO NOT ATTEMPT TO SERVICE IT YOURSELF. Return the amplifier to our factory service department where it will be carefully checked and any trouble corrected.

RETURNING THE UNIT FOR SERVICE

The amplifier should require very little service except for occasional fuse replacement which may become necessary in some cases. For problems of a more serious nature, we recommend that you return the unit to the Lafayette store from which it was purchased.

If the unit is to be shipped to our main office for service, please read the instructions which follow.

Shipping Instructions

Pack the unit very carefully to avoid damage in transit, preferably in its original carton. If the original carton is not available, use a sturdy carton with at least 3 inches of shredded paper or excelsior around the unit. In the latter case, wrap the unit in paper first to avoid particles of packing material getting into it. Include with the unit a letter explaining exactly what difficulties you have encountered (remember to add an extra 5 c postage and indicate on the outside of the carton that First Class Mail is enclosed). Ship by prepaid express if possible and mark ELECTRONIC EQUIPMENT -- FRAGILE. Clearly address the carton as follows :

SERVICE DIVISION
LAFAYETTE RADIO ELECTRONICS CORP.
111 JERICHO TURNPIKE
SYOSSET, L.I., N.Y. 11791

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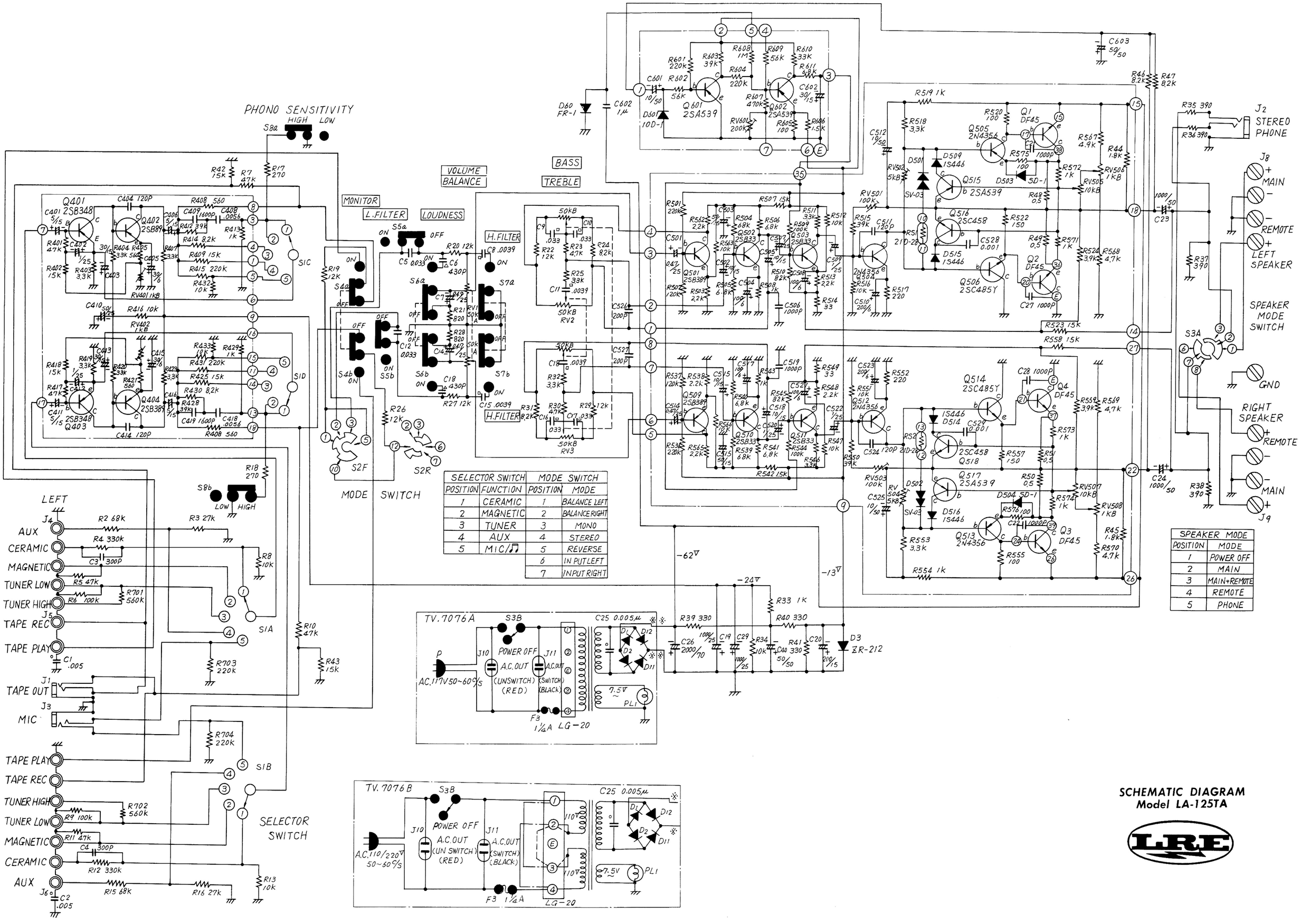
PHONO SENSITIVITY
HIGH
LOW
S8a
VOLUME
BALANCE
BASS
TREBLE
MONITOR
L.FILTER
LOUDNESS
H.FILTER
S5a
S6a
S7a
S4a
S4b
S5b
S6b
S7b
S2F
S2R
MODE SWITCH
SELECTOR SWITCH
MODE SWITCH
POSITION FUNCTION POSITION MODE
1 CERAMIC 1 BALANCE LEFT
2 MAGNETIC 2 BALANCE RIGHT
3 TUNER 3 MONO
4 AUX 4 STEREO
5 MIC 5 REVERSE
6 IN PUT LEFT
7 INPUT RIGHT
LEFT
AUX
CERAMIC
MAGNETIC
TUNER LOW
TUNER HIGH
TAPE REC
TAPE PLAY
TAPE OUT
MIC
S8b
LOW
HIGH
S1A
S1B
SELECTOR SWITCH
Q401 2SB348
Q402 2SB89
Q403 2SB348
Q404 2SB389
Q601 2SA539
Q602 2SA539
Q501 2SB387
Q502 2SB33
Q503 2SB33
Q505 2N4356
Q506 2SC485Y
Q509 2SB389
Q510 2SB33
Q511 2SB33
Q512 2N4356
Q513 2N4356
Q514 2SC485Y
Q515 b 2SA539
Q516 2SC458
Q517 2SA539
Q518 2SC458
Q1 DF45
Q2 DF45
Q3 DF45
Q4 DF45
D60 FR-1
D501 10D-1
D502 SV-03
D503 5D-1
D504 5D-1
D509 1S446
D514 1S446
D515 1S446
D516 1S446
J1 TAPE OUT
J2 STEREO PHONE
J3 MIC
J4 AUX
J5 TAPE REC
J6
J8 MAIN
REMOTE
LEFT SPEAKER
SPEAKER MODE SWITCH
S3A
GND
RIGHT SPEAKER
REMOTE
MAIN
J9
SPEAKER MODE
POSITION MODE
1 POWER OFF
2 MAIN
3 MAIN+REMOTE
4 REMOTE
5 PHONE
-62V
-13V
-24V
TV.7076A
S3B
POWER OFF
A.C.OUT
(UNSWITCH)
(RED)
(SWITCH)
(BLACK)
J10
J11
AC.117V 50~60%
F3 1/4A LG-20
7.5V
PL1
D1
D2
D11
D12
D3 ZR-212
TV.7076B
A.C.110/220V 50~60%
F3 1/4A LG-20
SCHEMATIC DIAGRAM
Model LA-125TA
LRE

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SYOSSET, L.I., NEW YORK

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